



**[4910-13-P]**

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2013-0554; Directorate Identifier 2012-SW-009-AD;  
Amendment 39-17774; AD 2014-05-01]**

**RIN 2120-AA64**

**Airworthiness Directives; Eurocopter Deutschland GmbH Helicopters**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for Eurocopter Deutschland GmbH (Eurocopter) Model EC135P1, EC135P2, EC135P2+, EC135T1, EC135T2, and EC135T2+ helicopters. This AD requires analyzing the main gearbox (MGB) oil for indications of metal chips or pieces, reviewing the MGB log or equivalent record, and inspecting certain teeth in the MGB after two chip indications. This AD was prompted by a partial tooth rupture found in an MGB that was returned to the manufacturer for repairs. The actions of this AD are intended to detect wear in the MGB that could lead to a gear tooth rupture, failure of the MGB, loss of power to the main rotor, and subsequent loss of control of the helicopter.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain document listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** For service information identified in this AD, contact American Eurocopter Corporation, 2701 N. Forum Drive, Grand Prairie, TX 75052; telephone (972) 641-0000 or (800) 232-0323; fax (972) 641-3775; or at <http://www.eurocopter.com/techpub>. You may review the referenced service information at the FAA, Office of the Regional Counsel, Southwest Region, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137.

#### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> or in person at the Docket Operations Office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the European Aviation Safety Agency (EASA) AD, any incorporated-by-reference service information, the economic evaluation, any comments received, and other information. The street address for the Docket Operations Office (phone: 800-647-5527) is U.S. Department of Transportation, Docket Operations Office, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Rao Edupuganti, Aviation Safety Engineer, Regulations and Policy Group, Rotorcraft Directorate, FAA, 2601 Meacham Blvd., Fort Worth, Texas 76137; telephone (817) 222-5110; email [rao.edupuganti@faa.gov](mailto:rao.edupuganti@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

On July 3, 2013, at 78 FR 40053, the Federal Register published our notice of proposed rulemaking (NPRM), which proposed to amend 14 CFR part 39 by adding an AD that would apply to Eurocopter Model EC135 P1, EC135 P2, EC135 P2+, EC135 T1, EC135 T2, and EC135 T2+ helicopters with an MGB, part number (P/N) 4649 010 003, 4649 010 005, 4649 010 006, 4649 010 006X, 4649 010 008, 4649 010 008X, 4649 001 007, 4649 010 010, or 4649 010 013 installed. The NPRM proposed to require analyzing the MGB oil for indications of metal chips or pieces, reviewing the MGB log or equivalent record, and inspecting certain teeth in the MGB after two chip indications. The proposed requirements were intended to detect wear in the MGB that could lead to a gear tooth rupture, failure of the MGB, loss of power to the main rotor, and subsequent loss of control of the helicopter.

The Required Actions section of the NPRM had a typographical error in some references to Eurocopter Alert Service Bulletin (ASB) EC135-63A-012, Revision 5, dated September 6, 2011. That error has been corrected in this AD.

The NPRM was prompted by AD No. 2009-0106R1, dated November 3, 2011, issued by EASA, which is the Technical Agent for the Member States of the European Union. EASA advises that an MGB was returned to the manufacturer for repair after “several chip indications.” According to EASA, a partial tooth rupture was detected after disassembly of the gearbox and removal of a drive pinion. EASA states the tooth rupture was determined to have been caused by wear. EASA AD No. 2009-0106R1 includes requirements and timetables for oil sampling and analysis; checking the gearbox log card

for chip indications; and corrective measures for chip indications. It also states that a prescribed modification to the MGB would be terminating action for the AD.

### **Comments**

We gave the public the opportunity to participate in developing this AD, but we received no comments on the NPRM (78 FR 40053, July 3, 2013).

### **FAA's Determination**

These helicopters have been approved by the aviation authority of Germany and are approved for operation in the United States. Pursuant to our bilateral agreement with Germany, EASA, its technical representative, has notified us of the unsafe condition described in the EASA AD. We are issuing this AD because we evaluated all information provided by EASA and determined the unsafe condition exists and is likely to exist or develop on other helicopters of these same type designs and that air safety and the public interest require adopting the AD requirements as proposed except for correcting the references to Eurocopter Alert Service Bulletin EC135-63A-012, Revision 5, dated September 6, 2011, in paragraphs (e)(2)(ii)(A), (e)(3), (e)(4)(i), and (e)(4)(ii). These corrections are consistent with the intent of the proposals in the NPRM (78 FR 40053, July 3, 2013) and will not increase the economic burden on any operator nor increase the scope of the AD.

### **Differences Between this AD and the EASA AD**

The EASA AD applies to military EC635 helicopters. This AD does not apply to EC635 helicopters because they are not type certificated in the United States.

## **Related Service Information**

Eurocopter issued ASB EC135-63A-012 on August 8, 2007, which was followed by five revisions, the most recent of which was issued September 6, 2011. The ASBs prescribe procedures to monitor and detect wear in time to prevent MGB tooth ruptures in main transmissions for EC135 and EC635 model helicopters. Revision 5 of the ASB prescribes procedures for taking and analyzing scheduled oil samples, identifying and addressing chip indications, and inspecting certain teeth in gearboxes.

## **Costs of Compliance**

We estimate that this AD affects 242 helicopters of U.S. Registry and that labor costs average \$85 per work-hour. Based on these estimates, we expect the following costs:

- Taking oil samples will take 1 work-hour. Assuming 2 samples per aircraft per year, we estimate a total cost of \$170. No parts are needed, so the total cost for the U.S. fleet is \$41,140.
- A laboratory analysis of 2 oil samples cost \$200 per helicopter for labor and equipment, for a total fleet cost of \$48,400.
- Inspecting the oil filter element for a chip requires about a half-hour of labor for a cost per helicopter of about \$43. No parts are needed.
- Inspecting certain teeth in the gearbox, performing a ground run, and inspecting for leaking oil takes 8 work-hours for a labor cost of \$680. Parts cost \$196, for a total cost per helicopter of \$876.
- If the oil sample analysis indicates metal chips, recording the results on the aircraft log card takes a half-hour for a labor cost of about \$43 per helicopter.

- The cost of examining the log card for any previously recorded chip indications is minimal.

- Inspecting the chip detector for deposits requires about 5 minutes of labor for a labor cost of about \$7.

- Replacing the MGB with an airworthy MGB requires 8 work-hours for a labor cost of \$680. Parts cost \$145,000 for total cost per helicopter of \$145,680.

### **Authority for this Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on helicopters identified in this rulemaking action.

### **Regulatory Findings**

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a “significant regulatory action” under Executive Order 12866;
- (2) Is not a “significant rule” under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979);
- (3) Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction; and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared an economic evaluation of the estimated costs to comply with this AD and placed it in the AD docket.

#### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

#### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

#### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

2014-05-01 **Eurocopter Deutschland GmbH (Eurocopter)**: Amendment 39-17774;

Docket No. FAA-2013-0554; Directorate Identifier 2012-SW-009-AD.

**(a) Applicability**

This AD applies to Model EC135P1, EC135P2, EC135P2+, EC135T1, EC135T2, and EC135T2+ helicopters with a main gearbox (MGB), part number (P/N) 4649 010 003, 4649 010 005, 4649 010 006, 4649 010 006X, 4649 010 008, 4649 010 008X, 4649 001 007, 4649 010 010, or 4649 010 013 installed, certificated in any category.

**(b) Unsafe Condition**

This AD defines the unsafe condition as a tooth rupture in the MGB. This condition could result in failure of the MGB, loss of power to the main rotor, and subsequent loss of control of the helicopter.

**(c) Effective Date**

This AD becomes effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(d) Compliance**

You are responsible for performing each action required by this AD within the specified compliance time unless it has already been accomplished prior to that time.

**(e) Required Actions**

(1) Within 100 hours time-in-service (TIS), and thereafter at intervals not to exceed 100 hours or 12 months, whichever occurs first, take an oil sample in accordance with the Accomplishment Instructions, Part 1, of Eurocopter Alert Service Bulletin EC135-63A-012, Revision 5, dated September 6, 2011 (ASB EC135-63A-012).

(2) Within 25 hours TIS after taking the oil sample in paragraph (e)(1) of this AD, analyze the oil sample in accordance with the Accomplishment Instructions, Part 2.A.



through Part 2.C. of ASB EC135-63A-012, except that you are not required to contact Eurocopter.

(i) If the analysis indicates Stage II as specified by the Accomplishment Instructions, Part 2.B., of ASB EC135-63A-012, within 25 hours TIS, remove and inspect the oil filter element for a chip, defined as any solid piece of metal but not metallic fuzz or fine particles.

(A) If there are no chips, clean the oil filter element and chip detector, inspect the drive stage toothing, perform a ground run, and inspect for leaking oil in accordance with the Accomplishment Instructions, Part 4.A through 4.G, of ASB EC135-63A-012.

Change the oil.

(B) If there is a chip, replace the MGB with an airworthy MGB before further flight.

(ii) If the analysis indicates Stage III as specified by the Accomplishment Instructions, Part 2.B., of ASB EC135-63A-012 and if the water content is between 0.1 and 0.5 percent, within 10 hours TIS, remove and inspect the oil filter element for a chip.

(A) If there are no chips, clean the oil filter element and chip detector, inspect the drive stage toothing, perform a ground run, and inspect for leaking oil in accordance with the Accomplishment Instructions, Part 4.A through 4.G, of ASB EC135-63A-012.

Change the oil.

(B) If there is a chip, replace the MGB with an airworthy MGB before further flight.

(3) Before the MGB has accumulated 300 hours TIS, determine whether two or more chip indications have occurred. If two or more chip indications have occurred,

inspect the drive stage toothing, perform a ground run, and inspect for leaking oil in accordance with the Accomplishment Instructions, Part 4.A through 4.G, of ASB EC135-63A-012.

(4) Any time there is a chip indication, remove and inspect the chip detector for deposits (fine particles or metallic fuzz) or chips, and remove and inspect the oil filter element for a chip.

(i) If there are no chips and a minimal amount of particles or metallic fuzz, corresponding to Figure 5, Stage A of ASB EC135-63A-012, clean the chip detector and the oil filter element and enter the chip indication on the MGB log card before further flight.

(ii) If there are no chips and some particles or metallic fuzz, corresponding to Figure 5, Stage B of ASB EC135-63A-012, clean the chip detector and the oil filter element and enter the chip indication on the MGB log card before further flight, and within 10 hours TIS inspect the drive stage toothing, perform a ground run, and inspect for leaking oil in accordance with the Accomplishment Instructions, Part 4.A through 4.G, of ASB EC135-63A-012. Perform a ground run for 15 minutes at the flight-idle power setting, and then re-inspect the chip detector for a chip, particles, and metallic fuzz.

(iii) If there is a chip, replace the MGB with an airworthy MGB.

**(f) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Safety Management Group, FAA, may approve AMOCs for this AD. Send your proposal to: Rao Edupuganti, Aviation Safety Engineer, Regulations

and Policy Group, Rotorcraft Directorate, FAA, 2601 Meacham Blvd., Fort Worth, Texas 76137; telephone (817) 222-5110; email [rao.edupuganti@faa.gov](mailto:rao.edupuganti@faa.gov).

(2) For operations conducted under a 14 CFR part 119 operating certificate or under 14 CFR part 91, subpart K, we suggest that you notify your principal inspector, or lacking a principal inspector, the manager of the local flight standards district office or certificate holding district office, before operating any aircraft complying with this AD through an AMOC.

**(g) Additional Information**

The subject of this AD is addressed in the European Aviation Safety Agency (EASA) AD No. 2009-0106R1, dated November 3, 2011. You may view the EASA AD on the Internet at <http://www.regulations.gov> in Docket No. FAA-2013-0554.

**(h) Subject**

Joint Aircraft Service Component (JASC) Code: 6320, Main Rotor Gearbox.

**(i) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Eurocopter Alert Service Bulletin EC135-63A-012, Revision 5, dated September 6, 2011.

(ii) Reserved.

(3) For Eurocopter service information identified in this AD, contact American Eurocopter Corporation, 2701 N. Forum Drive, Grand Prairie, TX 75052; telephone (972) 641-0000 or (800) 232-0323; fax (972) 641-3775; or at <http://www.eurocopter.com/techpub>.

(4) You may view this service information at FAA, Office of the Regional Counsel, Southwest Region, 2601 Meacham Blvd., Room 663, Fort Worth, Texas 76137. For information on the availability of this material at the FAA, call (817) 222-5110.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call (202) 741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Fort Worth, Texas, on February 24, 2014.

Bruce E. Cain,

Acting Directorate Manager, Rotorcraft Directorate,  
Aircraft Certification Service.

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